



AN ANALYSIS OF ONTARIO MOTORCYCLE ACCIDENT RECORDS 1981 - 1983



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**AN ANALYSIS OF
ONTARIO MOTORCYCLE ACCIDENT RECORDS
1981 - 1983**

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ABSTRACT

In Ontario, motorcycle accidents have been increasing faster annually than highway accidents involving other types of motor vehicles. However, taking into account the rapid growth of motorcycle ownership, the accident rate per 100 registered motorcycles shows a small but steady decline over the five years from 1981 to 1985.

The following report is a detailed analysis of all accidents involving motorcycles which occurred in 1981, 1982, and 1983. It is shown in this study that certain driver and environment characteristics at the time of the accident are related to those accidents which resulted in the motorcycle rider sustaining major injuries. The categories that were examined included licence status, driver age, alcohol use, driver error, helmet use, single vehicle accident, and time of accident occurrence. Accordingly, the analysis includes a comparison between those characteristics associated with "serious" injury (major and fatal) and those associated with lesser injuries.

Measures of exposure to risk of an accident (e.g. miles travelled annually) have not been applied to the data studied in this report. Therefore, estimates of the impact of those characteristics found to be associated with increased severity of injury on the likelihood of an accident has not been attempted. However, the results support a need to examine possible countermeasures, and are a step towards obtaining a better understanding of accidents involving motorcycles.

1/ INTRODUCTION:

The number of motorcyclists involved in traffic accidents in Ontario increased each year from 1978 through 1984 (see Table 1). However, for the five years from 1981 to 1985, the accident involvement rate (per registered motorcycle) has been decreasing and continues to be less than five per cent.

In order to gain a better understanding of factors in accidents where a motorcycle rider (driver and/or passenger) was killed, a detailed review of relevant police reports for the years 1982 - 1984 (incl.) was undertaken. A number of factors emerged from this review that were outlined in an internal study from which a summary table of important factors are shown in Table 2. However, the number of fatalities is relatively small; there are about 125 per year for the years examined, whereas the number of motorcycle riders involved in accidents reported to the police are approximately 6,800 a year. Therefore, it was decided to reapply the analysis to all accidents involving a motorcycle (thereby expanding the data base) by carrying out a computer examination of the Accident Master File at the Ministry of Transportation and Communications.

2/ DATA BASE AND ANALYSIS:

Ontario traffic accident records for the years 1981, 1982 and 1983 were selected for analysis; 1982 and 1983 for comparison with the previous analysis of fatal motorcycle accidents, and 1981 to extend the time-scale of the findings (at the time of the analysis, computerized data for 1984 was not available). It should be noted that the probationary licensing program for newly-licensed drivers, which includes motorcyclists, was introduced in June 1981; however, this report does not include an assessment of that program.

The traffic accidents which were analyzed were those accidents reported to the police involving injury or property damage only, in which the total value of all damage apparently exceeded \$400.00 per accident. On January 1, 1985 this minimum value was raised to \$700.00 per accident. As a result of the minimum value requirement to report the accident, a number of property damage only accidents will not be reported to the police. Also, in single-vehicle accidents where there is property damage exceeding the minimum value and/or where there is injury which is not incapacitating, one can surmise that some of these types of accidents will not be reported; particularly if the driver suspects/knows he has committed a violation.

The Accident Master File (AMF) is a computerized data file which contains details of: the location and time of the accident; the vehicles involved in the accident and the drivers of those vehicles. The file is derived from the Motor Vehicle Accident Report completed by the police (see Figure 1) and may have confounded data: Prior to 1985 the category of "motorcycle" included ATVS (all-terrain vehicles) and motor-tricycles and therefore they are included in this report; however, as accidents occurring only on the highway are being examined, the involvement of ATVS is minor. For example, in 1983 the proportion of "motorcycle" victims that were estimated to be riding ATVS was just over one percent.

The driver information in the AMF does not include the date of licence issue to drive that type of vehicle, or the number of traffic offences and criminal code convictions, if any. This type of information is kept on the Driver File which, in this study, has not been accessed to correlate with specific data on the AMF. Recent background information on motorcycle drivers such as: years of riding experience; frequency of riding; annual kilometres; etc. is not available and, therefore, extension of findings in this report to the motorcycle driver population as a whole has not been attempted.

This report is descriptive in nature and is based on tabulations of motorcycle occupant injury levels against, in general, single variable factors that are characteristic of traffic accidents. Definitions of injury severities are as follows:

- Minimal - Persons did not go to a hospital when leaving the scene of the accident. This category includes minor abrasions and bruises, complaint of pain, etc. providing the person chose not to go to a hospital.
- Minor - Persons with injuries or complaint of pain who went to a hospital but were treated in the emergency room and released (not admitted to a hospital).
- Major - Persons with injuries or complaint of pain who went to a hospital and were subsequently admitted. This includes persons admitted for observation only.
- Fatal - A "fatal" injury is any injury that results in death within thirty days of the motor vehicle accident (previously twelve months for accidents before 1982).

The tables to be discussed in this report are in the Appendix and are grouped under: 1. Motorcycle Driver (and Passenger) Characteristics and 2. Environmental Characteristics. The tables are labelled a, b, c, corresponding to the years 1981, 1982 and 1983, respectively. "Environmental Characteristics" tables include injury severities for the motorcycle driver only and all tables were simplified by combining the cell frequencies for "Minimal" and "Minor" injuries.

In the discussion in the report, cell frequencies for "Major" and "Fatal" injuries are reviewed in combination under the heading of "Serious" because of the small frequencies sometimes occurring in the cells for fatal injuries.

3/ RESULTS:

As mentioned previously, the data transferred from the police report to the accident master file may have minor inconsistencies; also some accidents involving motorcycles may never be reported to the police. In particular, the number of road users that are injured in traffic accidents and obtain medical attention but do not report to the police is not known; a project would be needed to enumerate these "hidden" victims. It is with these kinds of limitations in mind that the following results should be reviewed.

3.1 Injury Severity by Age for Driver and Passenger - Tables 3a,3b,3c

A general observation made from these tables is that the percentage of motorcycle drivers being seriously injured ("MAJOR" AND "FATAL") is much the same (18.9%, 18.1%, 18.5%) over the three years (1981, 1982, 1983); the corresponding percentages for passengers are 17.5%, 15.7%, 18.2%.

The age distribution of the reported accident victims are different for driver and passenger (see Figure 2); for drivers the peak relative frequency (35.0% approx.) occurs in the age category 20-24, whereas for passengers the peak relative frequency (40.0% approx.) occurs in the age category 16-19.

3.2 Injury Severity by Driver Licence Status for Driver and Passenger - Tables 4a,4b,4c,4d

A number of motorcycle drivers are apparently unlicensed*, i.e. without either a valid R-Permit (restricted motorcycle licence) or a valid M-Licence (full motorcycle licence). The proportion of motorcycle drivers unlicensed at the time of their accident was 11.4%, 9.7%, 9.2%, for 1981, 1982 and 1983 respectively (see Tables 4a,4b,4c). A greater proportion of these unlicensed drivers had serious injuries ("MAJOR" and "FATAL") compared to all the motorcycle drivers involved in accidents, namely 27.6% (18.9%), 25.5% (18.1%), 33.3% (18.5%) respectively.

A breakdown of the unlicensed driver category into age groups of "Under 16" and "16 and Over" for 1981, 1982 and 1983 is shown in Table 4d. The proportion of unlicensed drivers that are under 16 years of age varies from 15 to 20 percent, approximately. It can also be seen from the table that the proportion of unlicensed drivers under 16 that are seriously injured ("MAJOR" and "FATAL") is much the same as for those 16 and over, across all three years i.e. 29% (27%), 28% (26%) and 33% (33%) respectively.

As mentioned previously the vehicle category of motorcycle could contain ATV's involved in accidents on the highway. Ontario Motor Vehicle Accident Facts data for 1983 suggests that approximately 14% (77/562) of unlicensed "motorcycle" drivers were riding ATV's and 17% (3/18) fatally-injured unlicensed "motorcycle" drivers were in fact riding ATV's.

3.3 Injury Severity By Driver Action for Driver and Passenger - Tables 5a,5b,5c

Primary driver actions taken from the accident report were further categorized as "PROPER", "UK/NA" ("Unknown/Not Applicable"), or "OTHER" as well as four driver error categories of "SPEED TOO FAST", "IMPROPER TURN/PASS", "DID NOT YIELD/STOP" or "LOST CONTROL". The percentage of motorcycle drivers involved in accidents, who were considered to have been driving too fast for the conditions (approximately 16 percent) had more serious injuries compared to other driver categories; for drivers in the category of "SPEED TOO FAST" compared to accident-involved motorcycle drivers as a whole, the percentages with serious injuries were 31.9% (18.9%), 32.2% (18.1%), 31.9% (18.5%) respectively. Motorcycle drivers who were considered

*includes: never licensed; expired licence; suspended from driving; not complying with terms of conditional licence; motorcycle operation not within classification of licence.

to have been driving properly prior to the accident (43 to 45 percent of the motorcycle driver population) had the lowest percentages with serious injuries - 14.1%, 12.6%, and 13.1%.

The distribution of passengers involved in accidents among the categories of driver action was very similar to that of drivers, with the highest frequency occurring for both in the category of "PROPER" ranging from 41 to 45 percent. The percentage of serious injuries for passengers among driver action categories was the highest within the category of "SPEED TOO FAST" 24.3%, 26.9% and 29.9% for 1981, 1982 and 1983.

3.4 Injury Severity by Driver Condition for Driver and Passenger - Tables 6a, 6b, 6c

The percentage of motorcycle drivers involved in accidents who had been drinking (HBD) or had their ability impaired by alcohol (AIA) was, for the years 1981, 1982 and 1983, 14.2%, 15.9% and 14.7% respectively; when a passenger was being carried at the time of the accident, the percentages rose to 20.2%; 21.2% and 21.4%.

Those motorcycle drivers whose condition was reported as being something other than "NORMAL" (i.e. "AIA/HBD", "DRUGS/FATIGUE/OTHER") had a noticeably greater percentage with serious injuries compared to accident-involved motorcycle drivers as a whole 31.0%, 35.6% (18.9%); 32.1%, 35.7% (18.1%); and 37.1%, 38.6% (18.5%) respectively.

Similarly, passengers carried by drivers whose condition was reported as being other than "NORMAL" had a greater proportion of serious injuries than the accident passenger population as a whole: 23.3%, 18.6 (17.5%); 26.1%, 29.7% (15.7%); and 32.0%, 26.5% (18.2%) respectively.

3.5 Injury Severity by Helmet Usage for Driver and Passenger - Tables 7a, 7b, 7c

The proportion of motorcycle drivers reported as wearing helmets while involved in accidents was very similar to that of passengers for each of the three years under examination. The table for combined usage shows a gradual increase in the wearing of helmets: 69.5%, 74.1%, and 75.9% from 1981 to 1983.

Also evident from the table showing combined driver and passenger usage was a similarity between distributions of injury severity for those riders (drivers and passengers) wearing helmets and the total accident population, including those who were not.

3.6 Injury Severity by Accident Location for Driver Only - Tables 8a, 8b, 8c

At the time of the accident approximately 60 percent of the involved motorcycle drivers were riding either within an intersection, or in an intersection-related area (within six metres of the crosswalk) or were at other types of intersections. The remaining 40 percent were riding on other parts of the street/highway system which were termed "NON-INTERSECTION". The accidents that were reported as "NON-INTERSECTION" tended to have the greatest proportion of drivers with serious injuries: 21 to 23 percent.

3.7 Injury Severity by Road Alignment for Driver Only - Tables 9a,9b,9c

Approximately 80 percent of motorcycle drivers involved in accidents were riding on the straightaway, either level or on a gradient; however, where the accident occurred on a curve, either level or on a gradient, motorcycle drivers had a greater proportion with serious injuries ("MAJOR", "FATAL"). For combined totals from 1981 to 1983 the respective proportions with serious injuries for accidents occurring on the straightaway against accidents occurring on a curve were 16.7% (27.6%), 16.2% (25.5%), and 16.4% (27.3%). Where the accident occurred on a gradient and curve the respective proportions of motorcycle drivers with serious injuries were: 31.7%, 25.5%, and 29.9% from 1981 to 1983.

3.8 Injury Severity by Ambient Light for Driver Only - Tables 10a,10b,10c

Ambient lighting conditions at the time of the accident were separated into three categories: "DAY", "DUSK/DAWN" and "DARK". Thirty percent of motorcycle drivers involved in accidents were riding when it was dark. Of these 30 percent, approximately 23 to 25 percent sustained serious injuries, compared with approximately 18 to 19 percent for all motorcycle drivers involved in accidents. Of those motorcycle drivers involved in accidents during the day (i.e. two-thirds of all accident-involved motorcycle drivers) the proportion of drivers having serious injuries was 15 to 17 percent.

3.9 Injury Severity by Collision Type for Driver Only - Tables 11a,11b,11c

Tables 11a, 11b, and 11c detail frequencies of driver injury for objects of initial impact and for numbers of vehicles involved. The proportion of accident-involved motorcycle drivers having single-vehicle accidents was approximately 38 percent for each of the three years; the subgroup of "PEDESTRIAN OR ANIMAL" allows their initial involvement in single-vehicle accidents to be quantified which is about three percent for each of the three years. The proportion of these motorcycle drivers (involved in single-vehicle accidents) having serious injuries was approximately 21 percent compared to 17 percent for those motorcycle drivers involved in accidents with other vehicles. Motorcycle drivers involved in accidents with fixed objects, which formed the bulk of single-vehicle accidents, showed a correspondingly high proportion of serious injuries (22%).

4/ DISCUSSION AND CONCLUSIONS

A previous analysis of fatal motorcycle accidents in Ontario reported the frequency of factors such as age of the driver, licence status, condition of the driver, number of vehicles in the accident, ambient light etc. The analysis presented and discussed in this report extends the previous analysis by examining other related factors, and by quantifying injury severity across all motorcycle accidents.

The following discussion is based on a descriptive analysis of accident report records for the years 1981, 1982 and 1983 involving approximately five percent of annually registered motorcycles in Ontario.

- Although the proportion of unlicensed motorcycle drivers involved in accidents over the three years (10.0%) is small, they represent a disproportionate 15.7% of drivers with serious injuries ("MAJOR" and "FATAL"). See Tables 3 and 4, (a,b,c).

- Estimates for 1983 indicate that ATV drivers involved in accidents on the highway represented approximately 14% of all unlicensed "motorcycle" drivers, and approximately 17% of those who were killed. These similar proportions suggest that the inclusion of ATV's in the motorcycle category will have little impact on the conclusions already drawn regarding injury levels among unlicensed drivers.
- Over the three years, drivers driving "properly" represented 43 to 45 percent of motorcycle drivers involved in accidents, but they represented a lesser 30 to 32 percent of drivers with serious injuries comprising 32 to 34 percent of "MAJOR" injuries and 17 percent of "FATAL" injuries (tables 5a, 5b, and 5c).

Motorcycle drivers in the reported driver action category of "SPEED TOO FAST" represented about 16 percent of accident-involved drivers however, the proportion with serious injuries was about 28 percent, comprising 27 percent of "MAJOR" injuries and 36 to 45 percent of "FATAL" injuries.

- Approximately 79 percent of all motorcycle drivers involved in accidents over the three years were reported as having a "normal" condition (tables 6a, 6b and 6c). These "normal" drivers had 58 to 65 percent of the serious injuries made up of 61 to 69 percent of "MAJOR" injuries and 55 to 65 percent of "FATAL" injuries. However, 14 to 16 percent of the motorcycle drivers were reported as "had been drinking" or had "ability impaired by alcohol" and these drivers received 23 to 30 percent of the serious injuries made up of 20 to 28 percent of "MAJOR" injuries and 55 to 65 percent of "FATAL" injuries.

For those motorcycle drivers riding with passengers and involved in accidents, 20 to 22 percent "had been drinking" or had their "ability impaired by alcohol". For those passengers who were seriously injured the corresponding driver's reported alcohol association was 27 to 38 percent.

Therefore, there seems to be an increased risk of serious injury to a motorcycle driver or passenger involved in an accident if the driver has been drinking alcohol.

- Drivers' and passengers' usage of helmets as reported in the accident records were very similar for each year and ranged between 70 and 75 percent, but both usage rates tended to rise over the three years. The relationship between helmet usage and injury severity is unclear, as the specific nature of the injuries was not studied.
- Over the three years, approximately 80 percent of motorcycle drivers involved in accidents were driving on a straight section of highway and sustained approximately 71 percent of the serious injuries (tables 9a, 9b and 9c). The rest of the accident-involved drivers (20 %) were on a curved section of the highway at the time of the collision and received 29 percent of the serious injuries.

It is conceivable that a number of these accidents on curved sections would be accidents of a more severe nature with the motorcycle in question moving into the opposing lane or leaving the roadway altogether, thus resulting in more serious injuries. However, further analysis of accidents on curved sections of the highway is warranted.

- Motorcycle drivers involved in accidents during the daytime account for 65 to 68 percent of all motorcycle drivers involved in accidents; these two-thirds of drivers sustain approximately 58 percent of the serious injuries.

Motorcycle drivers involved in accidents at night comprise 27 to 31 percent of the total but receive approximately 38 percent of all serious injuries. This disproportionate relationship with severity reflects the evidence of accident statistics in general (i.e. including automobile accidents) that accidents at night tend to produce more severe injuries pro rata.

It is apparent from the present findings that the factors, which were reported in an earlier analysis of fatal motorcycle accidents, are associated with increased frequencies of serious injury (FATAL, MAJOR). There are hypotheses that can be put forward to explain possible relationships leading to this increased severity of injuries that have not been examined directly by the analysis reported here; e.g. "unlicensed drivers are more likely to take risks such as 'riding too fast' that they suffer more serious injuries"; "riding too fast contributes to loss of control resulting in more serious injuries." Such hypotheses could be investigated through multi-factor computer analyses, searches of and correlation with detailed injury files and on-site multidisciplinary accident investigation.

The results of the present analysis should not be generalized to the motorcycle driver population as a whole unless we have specific and corresponding information on motorcycle driving behaviour or exposure. For example, we have little Ontario information on the proportions of motorcyclists riding at night and therefore cannot reliably estimate the underlying risk of a motorcyclist becoming involved in a "nighttime" accident. The present analysis, based on an analysis of accident records, is a step in increasing our understanding of motorcycle accidents.

APPENDIX - TABLES AND FIGURES

YEAR	M/CYCLES INVOLVED IN ACCIDENTS*	MOTOR- CYCLES REGISTERED	INVOLVEMENTS PER 100 MOTORCYCLES
1978**	4,202	86,377	4.9
1979	4,394	90,957	4.8
1980	4,489	96,942	4.6
1981	5,256	107,227	4.9
1982	5,728	119,642	4.8
1983	6,241	133,300	4.7
1984	6,553	146,205	4.5
1985**	6,458	149,441	4.3

TABLE 1: NUMBERS OF MOTORCYCLES INVOLVED IN ACCIDENTS AND RATE PER REGISTERED VEHICLE, ONTARIO, 1978 TO 1985 (INCL.)

* Motor vehicle accidents occurring on the highway and reported to the police (includes property damage only).

** Minimum estimated vehicle(s) damage cost (to report accident) increased to: \$400 (1978), \$700 (1985).

FACTORS IN MOTORCYCLE FATAL ACCIDENTS

PERCENTAGE INVOLVEMENT

	1982	1983	1984
o UNLICENSED MOTORCYCLE DRIVERS	34	33	31
o YOUNG, INEXPERIENCED MOTORCYCLE DRIVERS			
- Under 25 years old	65	67	66
- "M" licence less than one year	21	16	15
o ALCOHOL USED (FATALITIES)	62	60	57
o HELMET NOT WORN (FATALITIES)	14	10	14
o MOTORCYCLE DRIVER ERROR			
- Speed too fast/lost control	53	55	58
- Other error	18	23	13
o SINGLE VEHICLE ACCIDENTS	46	36	48
o TIME OF OCCURRENCE			
- Day/Night	50/50	50/50	40/60
- Weekend	50	50	50

**TABLE 2: SUMMARY OF FACTORS RELEVANT TO
MOTORCYCLE FATAL ACCIDENTS***

* From Ontario Motor Vehicle Accident Facts, 1984
Prepared by Safety Coordination and Development Office

ONTARIO MOTORCYCLE ACCIDENTS - 1981 REPORTABLE

SUMMARY			AGE		DRIVER					
SEVERITY OF INJURY	DRIVER FREQ. (%)	PASSENGER FREQ. (%)	INJURY SEVERITY	U/K FREQ. (%)	UNDER 16 FREQ. (%)	16 - 19 FREQ. (%)	20 - 24 FREQ. (%)	25 - 34 FREQ. (%)	OVER 34 FREQ. (%)	TOTAL FREQ. (%)
NONE	724 14.1	183 16.9	NONE	42 72	15 14	197 13	295 16	138 11	37 10	724 14
MINOR AND MINIMAL	3430 67.0	711 65.7	MINOR AND MINIMAL	14 24	62 57	1057 70	1223 66	810 67	264 69	3430 67
MAJOR	876 17.1	176 16.3	MAJOR	2 3	30 28	249 16	296 16	222 18	77 20	876 17
FATAL	93 1.8	13 1.2	FATAL	0 0	1 1	16 1	36 2	35 3	5 1	93 2
TOTAL	5123 100.0	1083 100.1	TOTAL	58 (1.1)	108 (2.1)	1519 (29.7)	1850 (36.1)	1205 (23.5)	383 (7.5)	5123

PASSENGER

AGE INJURY SEVERITY	U/K FREQ. (%)	UNDER 16 FREQ. (%)	16 - 19 FREQ. (%)	20 - 24 FREQ. (%)	25 - 34 FREQ. (%)	OVER 34 FREQ. (%)	TOTAL FREQ. (%)
NONE	21 78	23 19	74 17	43 14	18 11	4 9	183 17
MINOR & MIN.	6 22	75 63	269 63	218 71	111 71	32 68	711 66
MAJOR	0 0	20 17	78 18	40 13	27 17	11 23	176 16
FATAL	0 0	1 1	6 1	5 2	1 1	0 0	13 1
TOTAL	27 (2.5)	119 (11.0)	427 (39.4)	306 (28.3)	157 (14.5)	47 (4.3)	1083

TABLE 3a: INJURY SEVERITY BY VICTIM AND AGE GROUP

ONTARIO MOTORCYCLE ACCIDENTS - 1982 REPORTABLE

SUMMARY				DRIVER										PASSENGER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
SEVERITY OF INJURY	DRIVER FREQ.	DRIVER (%)	PASSENGER FREQ.	PASSENGER (%)	AGE INJURY SEVERITY	U/K FREQ. (%)	UNDER 16 FREQ. (%)	16 - 19 FREQ. (%)	20 - 24 FREQ. (%)	25 - 34 FREQ. (%)	OVER 34 FREQ. (%)	TOTAL FREQ. (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

TABLE 3b: INJURY SEVERITY BY VICTIM AND AGE GROUP

ONTARIO MOTORCYCLE ACCIDENTS - 1983 REPORTABLE

SUMMARY		DRIVER							AGE INJURY SEVERITY
SEVERITY OF INJURY	DRIVER FREQ. (%)	PASSENGER FREQ. (%)	U/K FREQ. (%)	UNDER 16 FREQ. (%)	16 - 19 FREQ. (%)	20 - 24 FREQ. (%)	25 - 34 FREQ. (%)	OVER 34 FREQ. (%)	
NONE	859 14.1	210 17.7	44 71	13 11	262 15	285 13	198 14	57 10	TOTAL FREQ. (%)
MINOR AND MINIMAL	4102 67.4	758 64.0	12 19	64 56	1246 70	1436 68	972 67	372 68	859 14.1
MAJOR	1028 16.9	197 16.6	6 10	33 29	256 14	367 17	258 18	108 20	4102 67.4
FATAL	98 1.6	19 1.6	0 0	5 4	25 1	35 2	25 2	8 1	1028 16.9
TOTAL	6087 100.0	1184 99.9	62 (1.0)	115 (1.9)	1789 (29.4)	2123 (34.9)	1453 (23.9)	545 (9.0)	98 1.6

PASSENGER		PASSENGER						
SEVERITY OF INJURY	PASSENGER FREQ. (%)	U/K FREQ. (%)	UNDER 16 FREQ. (%)	16 - 19 FREQ. (%)	20 - 24 FREQ. (%)	25 - 34 FREQ. (%)	OVER 34 FREQ. (%)	TOTAL FREQ. (%)
NONE	210 17.7	44 71	13 11	262 15	285 13	198 14	57 10	859 14.1
MINOR & MIN.	758 64.0	12 19	64 56	1246 70	1436 68	972 67	372 68	4102 67.4
MAJOR	197 16.6	6 10	33 29	256 14	367 17	258 18	108 20	1028 16.9
FATAL	19 1.6	0 0	5 4	25 1	35 2	25 2	8 1	98 1.6
TOTAL	1184 99.9	62 (1.0)	115 (1.9)	1789 (29.4)	2123 (34.9)	1453 (23.9)	545 (9.0)	6087

TABLE 3c: INJURY SEVERITY BY VICTIM AND AGE GROUP

ONTARIO MOTORCYCLE ACCIDENTS - 1981 REPORTABLE

DRIVER INJURY SEVERITY	DRIVER LICENCE STATUS			
	U/K FREQ.	LICENSED FREQ. (%)	UNLICENSED FREQ. (%)	TOTAL FREQ. (%)
NONE	48	55.8	73	12.5
MINOR AND MINIMAL	29	33.7	350	59.9
MAJOR	8	9.3	140	24.0
FATAL	1	1.2	21	3.6
TOTAL	86	(1.7)	4453	(86.9)
			584	(11.4)
				5123

PASSENGER INJURY SEVERITY	DRIVER LICENCE STATUS			
	U/K FREQ.	LICENSED FREQ. (%)	UNLICENSED FREQ. (%)	TOTAL FREQ. (%)
NONE	7	38.9	26	18.4
MINOR AND MINIMAL	9	50.0	84	59.6
MAJOR	2	11.1	29	20.6
FATAL	*	.0	2	1.4
TOTAL	18	(1.7)	924	(85.3)
			141	(13.0)
				1083

TABLE 4a: INJURY SEVERITY BY DRIVER LICENCE STATUS
(DRIVER, PASSENGER)

ONTARIO MOTORCYCLE ACCIDENTS - 1982 REPORTABLE

DRIVER INJURY SEVERITY	DRIVER LICENCE STATUS				TOTAL FREQ. (%)
	U/K FREQ. (%)	LICENSED FREQ. (%)	UNLICENSED FREQ. (%)		
NONE	55 62.5	692 13.9	68 12.4		815 14.5
MINOR AND MINIMAL	28 31.8	3430 68.7	341 62.1		3799 67.5
MAJOR	5 5.7	791 15.8	116 21.1		912 16.2
FATAL	0 0.0	82 1.6	24 4.4		106 1.9
TOTAL	88 (1.6)	4995 (88.7)	549 (9.7)		5632

PASSENGER INJURY SEVERITY	DRIVER LICENCE STATUS				TOTAL FREQ. (%)
	U/K FREQ. (%)	LICENSED FREQ. (%)	UNLICENSED FREQ. (%)		
NONE	7 35.0	183 17.9	31 23.5		221 18.8
MINOR AND MINIMAL	8 40.0	678 66.4	82 62.1		768 65.5
MAJOR	4 20.0	140 13.7	18 13.6		162 13.8
FATAL	1 5.0	20 2.0	1 .8		22 1.9
TOTAL	20 (1.7)	1021 (87.0)	132 (11.3)		1173

TABLE 4b: INJURY SEVERITY BY DRIVER LICENCE STATUS
(DRIVER, PASSENGER)

ONTARIO MOTORCYCLE ACCIDENTS - 1983 REPORTABLE

DRIVER INJURY SEVERITY	DRIVER LICENCE STATUS				TOTAL FREQ. (%)
	U/K FREQ. (%)	LICENSED FREQ. (%)	UNLICENSED FREQ. (%)		
NONE	51 52.0	748 13.8	60 10.7		859 14.1
MINOR AND MINIMAL	33 33.7	3754 69.2	315 56.0		4102 67.4
MAJOR	11 11.2	848 15.6	169 30.1		1028 16.9
FATAL	3 3.1	77 1.4	18 3.2		98 1.6
TOTAL	98 (1.6)	5427 (89.2)	562 (9.2)		6087

PASSENGER INJURY SEVERITY	DRIVER LICENCE STATUS				TOTAL FREQ. (%)
	U/K FREQ. (%)	LICENSED FREQ. (%)	UNLICENSED FREQ. (%)		
NONE	5 31.3	182 17.6	23 17.6		210 17.7
MINOR AND MINIMAL	8 50.0	675 65.1	75 57.3		758 64.0
MAJOR	2 12.5	165 15.9	30 22.9		197 16.6
FATAL	1 6.3	15 1.4	3 2.3		19 1.6
TOTAL	16 (1.4)	1037 (87.6)	131 (11.1)		1184

TABLE 4c: INJURY SEVERITY BY DRIVER LICENCE STATUS
(DRIVER, PASSENGER)

ONTARIO MOTORCYCLE ACCIDENTS - REPORTABLE

UNLICENSED DRIVERS

DRIVER INJURY SEVERITY	1981			1982			1983		
	UNDER 16 FREQ.	UNDER 16 (%)	16 AND OVER FREQ.	16 AND OVER (%)	UNDER 16 FREQ.	UNDER 16 (%)	16 AND OVER FREQ.	16 AND OVER (%)	16 AND OVER FREQ.
NONE	15	14	58	12	12	14	56	12	47
MINOR AND MINIMAL	62	57	288	61	48	58	293	63	251
MAJOR	30	28	110	23	20	24	96	21	136
FATAL	1	1	20	4	3	4	21	5	13
TOTAL	108	(18.5)	476	(81.5)	83	(15.1)	466	(84.9)	447
								(20.5)	(79.5)

TABLE 4d: INJURY SEVERITY BY AGE FOR

UNLICENSED DRIVER ONLY

ONTARIO MOTORCYCLE ACCIDENTS - 1981 REPORTABLE

DRIVER INJ. SEVERITY	DRIVER ACTION	UK/NA FREQ. (%)	PROPER FREQ. (%)	OTHER FREQ. (%)	SPEED TOO FAST FREQ. (%)	IMPROPER TURN/PASS FREQ. (%)	DID NOT YIELD/STOP FREQ. (%)	LOST CONTROL FREQ. (%)	TOTAL FREQ. (%)
NONE		87 26.8	335 15.2	73 15.4	69 8.2	43 17.7	49 19.1	68 8.8	724 14.1
MINOR AND MINIMAL		170 52.3	1564 70.8	318 67.2	502 59.8	161 66.3	149 58.0	566 72.9	3430 67.0
MAJOR		58 17.8	298 13.5	74 15.6	231 27.5	35 14.4	50 19.5	130 16.8	876 17.1
FATAL		10 3.1	13 0.6	8 1.7	37 4.4	4 1.6	9 3.5	12 1.5	93 1.8
TOTAL		325 (6.3)	2210 (43.1)	473 (9.2)	839 (16.4)	243 (4.7)	257 (5.0)	776 (15.1)	5123

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PASSENGER INJ. SEVERITY	DRIVER ACTION	UK/NA FREQ. (%)	PROPER FREQ. (%)	OTHER FREQ. (%)	SPEED TOO FAST FREQ. (%)	IMPROPER TURN/PASS FREQ. (%)	DID NOT YIELD/STOP FREQ. (%)	LOST CONTROL FREQ. (%)	TOTAL FREQ. (%)
NONE		20 28.6	69 14.9	25 24.3	20 11.0	10 21.7	14 25.5	25 15.2	183 16.9
MINOR AND MINIMAL		33 47.1	321 69.2	68 66.0	117 64.6	27 58.7	29 52.7	116 70.7	711 65.7
MAJOR		14 20.0	70 15.1	10 9.7	39 21.5	9 19.6	12 21.8	22 13.4	176 16.3
FATAL		3 4.3	4 0.9	0 0.0	5 2.8	0 0.0	0 0.0	1 0.6	13 1.2
TOTAL		70 (6.5)	464 (42.8)	103 (9.5)	181 (16.7)	46 (4.2)	55 (5.1)	164 (15.1)	1083

TABLE 5a: INJURY SEVERITY BY DRIVER ACTION
(DRIVER, PASSENGER)

ONTARIO MOTORCYCLE ACCIDENTS - 1982 REPORTABLE

DRIVER INJ. SEVERITY	DRIVER ACTION	UK/NA		PROPER		OTHER		SPEED TOO FAST		IMPROPER TURN/PASS		DID NOT YIELD/STOP		LOST CONTROL		TOTAL	
		FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)
NONE		99	26.6	391	16.1	74	14.4	70	7.9	43	16.2	46	15.9	92	10.6	815	14.5
MINOR AND MINIMAL		186	50.0	1730	71.2	371	72.2	534	59.9	171	64.5	174	60.2	633	72.6	3799	67.5
MAJOR		72	19.4	290	11.9	68	13.2	249	27.9	43	16.2	56	19.4	134	15.4	912	16.2
FATAL		15	4.0	18	0.7	1	0.2	38	4.3	8	3.0	13	4.5	13	1.5	106	1.9
TOTAL		372	(6.6)	2429	(43.1)	514	(9.1)	891	(15.8)	265	(4.7)	289	(5.1)	872	(15.5)	5632	

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PASSENGER INJ. SEVERITY	DRIVER ACTION	UK/NA		PROPER		OTHER		SPEED TOO FAST		IMPROPER TURN/PASS		DID NOT YIELD/STOP		LOST CONTROL		TOTAL	
		FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)
NONE		11	13.4	102	21.0	28	24.6	25	13.0	14	24.6	13	24.1	28	14.9	221	18.8
MINOR AND MINIMAL		59	72.0	314	64.7	72	63.2	116	60.1	37	64.9	26	48.1	144	76.6	768	65.5
MAJOR		9	11.0	67	13.8	13	11.4	40	20.7	6	10.5	15	27.8	12	6.4	162	13.8
FATAL		3	3.7	2	0.4	1	0.9	12	6.2	0	0.0	0	0.0	4	2.1	22	1.9
TOTAL		82	(7.0)	485	(41.3)	114	(9.7)	193	(16.5)	57	(4.9)	54	(4.6)	188	(16.0)	1173	

TABLE 5b: INJURY SEVERITY BY DRIVER ACTION
(DRIVER, PASSENGER)

ONTARIO MOTORCYCLE ACCIDENTS - 1983 REPORTABLE

DRIVER INJ. SEVERITY	DRIVER ACTION	UK/NA FREQ. (Z)	PROPER FREQ. (Z)	OTHER FREQ. (Z)	SPEED TOO FAST FREQ. (Z)	IMPROPER TURN/PASS FREQ. (Z)	DID NOT YIELD/STOP FREQ. (Z)	LOST CONTROL FREQ. (Z)	TOTAL FREQ. (Z)
NONE		81 20.5	418 15.2	110 20.4	73 7.3	47 17.5	49 16.5	80 9.4	858 14.1
MINOR AND MINIMAL		211 53.3	1964 71.7	354 65.8	607 60.8	185 69.0	170 57.2	611 72.1	4102 67.4
MAJOR		93 23.5	348 12.7	68 12.8	275 27.5	32 11.9	66 22.2	146 17.2	1028 16.9
FATAL		11 2.8	11 0.4	6 1.1	44 4.4	4 1.5	12 4.0	10 1.8	98 1.6
TOTAL		396 (6.5)	2741 (45.1)	538 (8.8)	999 (16.4)	268 (4.4)	297 (4.9)	847 (13.9)	6086

PASSENGER INJ. SEVERITY	DRIVER ACTION	UK/NA FREQ. (Z)	PROPER FREQ. (Z)	OTHER FREQ. (Z)	SPEED TOO FAST FREQ. (Z)	IMPROPER TURN/PASS FREQ. (Z)	DID NOT YIELD/STOP FREQ. (Z)	LOST CONTROL FREQ. (Z)	TOTAL FREQ. (Z)
NONE		17 23.6	89 17.4	20 19.8	24 11.8	17 24.6	12 22.2	31 17.9	210 17.7
MINOR AND MINIMAL		37 51.4	348 68.1	65 64.4	121 59.3	43 62.3	24 44.4	120 69.4	758 64.0
MAJOR		15 20.8	71 13.9	15 14.9	50 24.5	8 11.6	17 31.5	21 12.1	197 16.6
FATAL		3 4.2	3 0.6	1 1.0	9 4.4	1 1.4	1 1.9	1 0.6	19 1.6
TOTAL		72 (6.1)	511 (43.2)	101 (8.5)	204 (17.2)	69 (5.8)	54 (4.6)	173 (14.6)	1184

TABLE 5c: INJURY SEVERITY BY DRIVER ACTION
(DRIVER, PASSENGER)

ONTARIO MOTORCYCLE ACCIDENTS - 1981 REPORTABLE

SEVERITY OF MOTORCYCLE OCCUPANT INJURY	DRIVER CONDITION FOR DRIVER INJURY LEVEL				DRIVER CONDITION FOR PASSENGER INJURY LEVEL			
	NORMAL FREQ. (%)	AIA/HBD* FREQ. (%)	DRUGS/FATIGUE /OTHER FREQ. (%)	TOTAL FREQ. (%)	NORMAL FREQ. (%)	AIA/HBD* FREQ. (%)	DRUGS/FATIGUE /OTHER FREQ. (%)	TOTAL FREQ. (%)
NONE	565 13.9	75 10.3	84 25.8	724 14.1	136 17.1	30 13.7	17 24.2	183 16.9
MINOR AND MINIMAL	2877 70.7	427 58.7	126 38.7	3430 67.0	533 67.1	138 63.0	40 57.1	711 65.7
MAJOR	602 14.8	175 24.0	99 30.4	876 17.1	119 15.0	46 21.0	11 15.7	176 16.3
FATAL	25 0.6	51 7.0	17 5.2	93 1.8	6 0.8	5 2.3	2 2.9	13 1.2
TOTAL	4069 (79.4)	728 (14.2)	326 (6.4)	5123	794 (73.3)	219 (20.2)	70 (6.5)	1083

REMAINDER: DRIVER CONDITION FOR DRIVER WITHOUT PASSENGER				REMAINDER: DRIVER CONDITION FOR PASSENGER WITHOUT PASSENGER			
3275 (81.1)				256 (6.3)			
509 (12.6)				4040			

ONTARIO MOTORCYCLE ACCIDENTS - 1982 REPORTABLE

SEVERITY OF MOTORCYCLE OCCUPANT INJURY	DRIVER CONDITION FOR DRIVER INJURY LEVEL					DRIVER CONDITION FOR PASSENGER INJURY LEVEL										
	NORMAL		AIA/HBD*		DRUGS/FATIGUE /OTHER		TOTAL		NORMAL		AIA/HBD*		DRUGS/FATIGUE /OTHER		TOTAL	
	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)
NONE	668	15.2	65	7.3	82	24.4	815	14.5	178	20.7	29	11.6	14	21.9	221	18.8
MINOR AND MINIMAL	3122	70.9	543	60.7	134	39.9	3799	67.5	582	67.7	155	62.2	31	48.4	768	65.5
MAJOR	583	13.2	222	24.8	107	31.8	912	16.2	95	11.0	51	20.5	16	25.0	162	13.8
FATAL	28	0.6	65	7.3	13	3.9	106	1.9	5	0.6	14	5.6	3	4.7	22	1.9
TOTAL	4401	(78.1)	895	(15.9)	336	(6.0)	5632		860	(73.3)	249	(21.2)	64	(5.5)	1173	

REMAINER: DRIVER CONDITION FOR DRIVER WITHOUT PASSENGER				3541	(79.4)	646	(14.5)	272	(6.1)	4459
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TABLE 6B: INJURY SEVERITY BY DRIVER CONDITION

(DRIVER, PASSENGER)

* Ability Impaired by Alcohol/Had Been Drinking

ONTARIO MOTORCYCLE ACCIDENTS - 1983 REPORTABLE

SEVERITY OF MOTORCYCLE OCCUPANT INJURY	DRIVER CONDITION FOR DRIVER INJURY LEVEL				DRIVER CONDITION FOR PASSENGER INJURY LEVEL			
	NORMAL		AIA/HBD*		DRUGS/FATIGUE /OTHER		TOTAL	
	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)
NONE	735	15.2	47	5.3	77	21.5	859	14.1
MINOR AND MINIMAL	3444	71.2	515	57.7	143	39.9	4102	67.4
MAJOR	630	13.0	267	29.9	131	36.6	1028	16.9
FATAL	27	0.6	64	7.2	7	2.0	98	1.6
TOTAL	4836	(79.4)	893	(14.7)	358	(5.9)	6087	
					863	(72.9)	253	(21.4)
					3973	(81.0)	640	(13.1)
							290	(5.9)
								4903

REMAINING: DRIVER CONDITION FOR DRIVER WITHOUT PASSENGER

TABLE 6c: INJURY SEVERITY BY DRIVER CONDITION
(DRIVER, PASSENGER)

* Ability Impaired by Alcohol/Had Been Drinking

ONTARIO MOTORCYCLE ACCIDENTS - 1981 REPORTABLE

SEVERITY OF INJURY	DRIVER USAGE			PASSENGER USAGE			COMBINED USAGE			TOTAL FREQ. (%)
	YES FREQ. (%)	NO FREQ. (%)	UNKNOWN FREQ. (%)	YES FREQ. (%)	NO FREQ. (%)	UNKNOWN FREQ. (%)	YES FREQ. (%)	NO FREQ. (%)	UNKNOWN FREQ. (%)	
NONE	423 11.8	230 16.7	71 41.8	106 14.4	64 20.6	13 37	529 12.3	294 17.4	84 41.0	907 14.6
MINOR & MINIMAL	2441 68.3	907 65.9	82 48.2	490 66.4	203 65.5	18 51	2931 67.9	1110 65.8	100 48.8	4141 66.7
MAJOR	641 17.9	220 16.0	15 8.8	132 17.9	40 12.9	4 11	773 17.9	260 15.4	19 9.3	1052 17.0
FATAL	71 2.0	20 1.5	2 1.2	10 1.4	3 1.0	0 0	81 1.9	23 1.4	2 1.0	106 1.7
TOTAL	3576 (69.8)	1377 (26.9)	170 (3.3)	738 (68.1)	310 (28.6)	35 (3.2)	4314 (69.5)	1687 (27.2)	205 (3.3)	6206
	SUB-TOTAL = 5123			SUB-TOTAL = 1083			TOTAL = 6206			

TABLE 7a: INJURY SEVERITY BY HELMET USAGE
(DRIVER, PASSENGER AND COMBINED)

ONTARIO MOTORCYCLE ACCIDENTS - 1982 REPORTABLE

SEVERITY OF INJURY	DRIVER USAGE				PASSENGER USAGE				COMBINED USAGE				TOTAL
	YES FREQ. (%)	NO FREQ. (%)	UNKNOWN FREQ. (%)		YES FREQ. (%)	NO FREQ. (%)	UNKNOWN FREQ. (%)		YES FREQ. (%)	NO FREQ. (%)	UNKNOWN FREQ. (%)		
NONE	516 12.4	231 17.9	68 37.0		161 18.1	44 17.6	16 47		677 13.4	275 17.8	84 38.5		1036 15.2
MINOR & MINIMAL	2831 68.1	873 67.5	95 51.6		580 65.2	173 69.2	15 44		3411 67.6	1046 67.8	110 50.5		4567 67.1
MAJOR	720 17.3	174 13.5	18 9.8		131 14.7	28 11.2	3 9		851 16.9	202 13.1	21 9.6		1074 15.8
FATAL	88 2.1	15 1.2	3 1.6		17 1.9	5 2.0	0 0		105 2.1	20 1.3	3 1.4		128 1.9
TOTAL	4155 (73.8)	1293 (23.0)	184 (3.3)		889 (75.8)	250 (21.3)	34 (2.9)		5044 (74.1)	1543 (22.7)	218 (3.2)		6805
	SUB-TOTAL = 5632				SUB-TOTAL = 1173				TOTAL = 6805				

TABLE 7b: INJURY SEVERITY BY HELMET USAGE
(DRIVER, PASSENGER AND COMBINED)

ONTARIO MOTORCYCLE ACCIDENTS - 1993 REPORTABLE

SEVERITY OF INJURY	DRIVER USAGE			PASSENGER USAGE			COMBINED USAGE			TOTAL
	YES FREQ. (%)	NO FREQ. (%)	UNKNOWN FREQ. (%)	YES FREQ. (%)	NO FREQ. (%)	UNKNOWN FREQ. (%)	YES FREQ. (%)	NO FREQ. (%)	UNKNOWN FREQ. (%)	
NONE	581 12.6	197 15.6	81 41.1	145 16.3	50 19.8	15 38	726 13.1	247 16.3	96 40.5	1069 14.7
MINOR & MINIMAL	3143 67.9	860 68.2	99 50.3	581 65.1	159 63.1	18 45	3724 67.5	1019 67.3	117 49.4	4860 66.8
MAJOR	820 17.7	193 15.3	15 7.6	151 16.9	39 15.5	7 17	971 17.6	232 15.3	22 9.3	1225 16.8
FATAL	85 1.8	11 0.9	2 1.0	15 1.7	4 1.6	0 0	100 1.8	15 1.0	2 0.8	117 1.6
TOTAL	4629 (76.0)	1261 (20.7)	197 (3.2)	892 (75.3)	252 (21.3)	40 (3.4)	5521 (75.9)	1513 (20.8)	237 (3.3)	7271
	SUB-TOTAL = 6087			SUB-TOTAL = 1134			TOTAL = 7271			

TABLE 7c: INJURY SEVERITY BY HELMET USAGE
(DRIVER, PASSENGER AND COMBINED)

ONTARIO MOTORCYCLE ACCIDENTS - 1981 REPORTABLE

ACCIDENT LOCATION	NON- INTERSECTION	INTERSECTION- RELATED	IN INTERSECTION	AT/NEAR PRIVATE DRIVE	RAILWAY CROSSING	TOTAL
	FREQ. (%)	FREQ. (%)	FREQ. (%)	FREQ. (%)	FREQ. (%)	FREQ. (%)
NONE	258 12.8	143 17.2	181 13.6	141 15.3	1 5.6	724 14.1
MINOR AND MINIMAL	1316 65.1	588 70.9	910 68.2	603 65.6	13 72.2	3430 67.0
MAJOR	394 19.5	96 11.6	224 16.8	158 17.2	4 22.2	876 17.1
FATAL	55 2.7	2 0.2	19 1.4	17 1.8	0 0	93 1.8
TOTAL	2023 (39.5)	829 (16.2)	1334 (26.0)	919 (17.9)	18 (0.4)	5123

TABLE 8a: INJURY SEVERITY BY ACCIDENT LOCATION

(DRIVER ONLY)

ONTARIO MOTORCYCLE ACCIDENTS - 1982 REPORTABLE

ACCIDENT LOCATION	NON- INTERSECTION	INTERSECTION- RELATED		IN INTERSECTION		AT/NEAR PRIVATE DRIVE		RAILWAY CROSSING		TOTAL	
	FREQ. (%)	FREQ. (%)	FREQ. (%)	FREQ. (%)	FREQ. (%)	FREQ. (%)	FREQ. (%)	FREQ. (%)	FREQ. (%)	FREQ. (%)	FREQ. (%)
NONE	315 14.4	171 17.6	191 12.9	129 13.6	9 23.7	815 14.5					
MINOR AND MINIMAL	1403 64.2	680 69.8	1040 70.2	653 68.7	23 60.5	3799 67.5					
MAJOR	412 18.8	116 11.9	229 15.5	151 15.9	4 10.5	912 16.2					
FATAL	57 2.6	7 0.7	22 1.5	18 1.9	2 5.3	106 1.9					
TOTAL	2187 (38.8)	974 (17.3)	1482 (26.3)	951 (16.9)	38 (0.7)	5632					

TABLE 8b: INJURY SEVERITY BY ACCIDENT LOCATION
(DRIVER ONLY)

ONTARIO MOTORCYCLE ACCIDENTS - 1983 REPORTABLE

DRIVER INJURY SEVERITY	ACCIDENT LOCATION	NON- INTERSECTION		INTERSECTION- RELATED		IN INTERSECTION		AT/NEAR PRIVATE DRIVE		RAILWAY CROSSING		TOTAL	
		FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)
NONE		272	12.3	187	18.3	241	14.1	149	13.5	10	24.4	859	14.1
MINOR AND MINIMAL		1427	64.6	719	70.3	1175	68.6	756	68.7	25	61.0	4102	67.4
MAJOR		462	20.9	109	10.7	270	15.8	182	16.5	5	12.2	1028	16.9
FATAL		48	2.2	8	0.8	27	1.6	14	1.3	1	2.4	98	1.6
TOTAL		2209	(36.3)	1023	(16.8)	1713	(28.1)	1101	(18.1)	41	(0.7)	6087	

TABLE 8c: INJURY SEVERITY BY ACCIDENT LOCATION

(DRIVER ONLY)

ONTARIO MOTORCYCLE ACCIDENTS - 1981 REPORTABLE

ROAD ALIGNMENT DRIVER INJURY SEVERITY	BLANK/NA FREQ. (%)	STRAIGHT ON LEVEL		STRAIGHT ON HILL		CURVE ON LEVEL		CURVE ON HILL		TOTAL	
		FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)
NONE	0 0.0	535	15.1	85	15.7	81	10.9	23	7.6	724	14.1
MINOR AND MINIMAL	0 0.0	2428	68.7	347	64.0	471	63.2	184	60.7	3430	67.4
MAJOR	0 0.0	529	15.0	96	17.7	171	23.0	80	26.4	876	16.9
FATAL	0 0.0	41	1.2	14	2.6	22	3.0	16	5.3	93	1.6
TOTAL	0 (0.0)	3533	(69.0)	542	(10.6)	745	(14.5)	303	(5.9)	5123	

TABLE 9a: INJURY SEVERITY BY ROAD ALIGNMENT

(DRIVER ONLY)

ONTARIO MOTORCYCLE ACCIDENTS - 1982 REPORTABLE

ROAD ALIGNMENT DRIVER INJURY SEVERITY	BLANK/NA FREQ. (%)	STRAIGHT ON LEVEL		STRAIGHT ON HILL		CURVE ON LEVEL		CURVE ON HILL		TOTAL	
		FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)
NONE	0 0.0	599	15.4	97	15.6	85	10.6	34	10.4	815	14.1
MINOR AND MINIMAL	0 0.0	2664	68.7	413	66.3	513	63.9	209	64.1	3799	67.4
MAJOR	0 0.0	564	14.5	102	16.4	175	21.8	71	21.8	912	16.9
FATAL	0 0.0	53	1.4	11	1.8	30	3.7	12	3.7	106	1.6
TOTAL	0 (0.0)	3880	(68.9)	623	(11.1)	803	(14.3)	326	(5.8)	5632	

TABLE 9b: INJURY SEVERITY BY ROAD ALIGNMENT
(DRIVER ONLY)

ONTARIO MOTORCYCLE ACCIDENTS - 1983 REPORTABLE

ROAD ALIGNMENT	DRIVER INJURY SEVERITY	BLANK/NA		STRAIGHT ON LEVEL		STRAIGHT ON HILL		CURVE ON LEVEL		CURVE ON HILL		TOTAL	
		FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)
NONE MINOR AND MINIMAL MAJOR FATAL	NONE	1	50.0	650	15.3	90	13.5	78	9.7	40	10.6	859	14.1
	MINOR AND MINIMAL	1	50.0	2922	68.9	440	66.1	515	64.2	224	59.4	4102	67.4
	MAJOR	0	0.0	622	14.7	121	18.2	191	23.8	94	24.9	1028	16.9
	FATAL	0	0.0	46	1.1	15	2.3	18	2.2	19	5.0	98	1.6
TOTAL		2	(0.0)	4240	(69.7)	666	(10.9)	802	(13.2)	377	(6.2)	6087	

TABLE 9c: INJURY SEVERITY BY ROAD ALIGNMENT
(DRIVER ONLY)

ONTARIO MOTORCYCLE ACCIDENTS - 1981 REPORTABLE

DRIVER INJURY SEVERITY	AMBIENT LIGHT	DAY		DUSK/DAWN		DARK		TOTAL	
		FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)
NONE		456	13.7	36	15.7	232	14.9	724	14.1
MINOR AND MINIMAL		2310	69.3	154	67.2	966	61.9	3430	67.0
MAJOR		531	15.9	28	12.2	317	20.3	876	17.1
FATAL		37	1.1	11	4.8	45	2.9	93	1.8
TOTAL		3334	(65.1)	229	(4.5)	1560	(30.5)	5123	

TABLE 10a: INJURY SEVERITY BY AMBIENT LIGHT

(DRIVER ONLY)

ONTARIO MOTORCYCLE ACCIDENTS - 1982 REPORTABLE

DRIVER INJURY SEVERITY	AMBIENT LIGHT	DAY		DUSK/DAWN		DARK		TOTAL	
		FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)
NONE		550	15.0	35	12.6	230	13.6	815	14.5
MINOR AND MINIMAL		2525	68.8	209	75.2	1065	63.2	3799	67.5
MAJOR		540	14.7	30	10.8	342	20.3	912	16.2
FATAL		54	1.5	4	1.4	48	2.8	106	1.9
TOTAL		3669	(65.1)	278	(4.9)	1685	(29.9)	5632	

TABLE 10b: INJURY SEVERITY BY AMBIENT LIGHT
(DRIVER ONLY)

ONTARIO MOTORCYCLE ACCIDENTS - 1983 REPORTABLE

DRIVER INJURY SEVERITY	DAY		DUSK/DAWN		DARK		TOTAL	
	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)
NONE	593	14.4	37	13.7	229	13.6	859	14.1
MINOR AND MINIMAL	2892	70.1	168	62.0	1042	61.7	4102	67.4
MAJOR	598	14.5	59	21.8	371	22.0	1028	16.9
FATAL	44	1.1	7	2.6	47	2.8	98	1.6
TOTAL	4127	(67.8)	271	(4.5)	1689	(27.7)	6087	

TABLE 10c: INJURY SEVERITY BY AMBIENT LIGHT
(DRIVER ONLY)

ONTARIO MOTORCYCLE ACCIDENTS - 1981 REPORTABLE

SEVERITY OF MOTORCYCLE DRIVER INJURY	INITIAL IMPACT WITH:				NUMBER OF VEHICLES:		
	MOVING VEHICLE FREQ. (%)	PEDESTRIAN OR ANIMAL FREQ. (%)	FIXED OBJECT FREQ. (%)	TOTAL FREQ. (%)	SINGLE VEHICLE* FREQ. (%)	INVOLVES OTHER VEHICLE FREQ. (%)	TOTAL FREQ. (%)
NONE	511 16.1	50 31.8	163 9.1	724 14.1	212 10.8	512 16.2	724 14.1
MINOR AND MINIMAL	2112 66.6	96 61.1	1222 68.1	3430 67.0	1320 67.6	2110 66.6	3430 67.0
MAJOR	508 16.0	10 6.4	358 19.9	876 17.1	369 18.9	507 16.0	876 17.1
FATAL	40 1.3	1 0.6	52 2.9	93 1.8	53 2.7	40 1.3	93 1.8
TOTAL	3171 (61.9)	157 (3.1)	1795 (35.0)	5123	1954 (38.1)	3169 (61.9)	5123

TABLE 11a: INJURY SEVERITY BY COLLISION TYPE
(DRIVER ONLY)

* Includes pedestrians and animals

ONTARIO MOTORCYCLE ACCIDENTS - 1982 REPORTABLE

SEVERITY OF MOTORCYCLE DRIVER INJURY	INITIAL IMPACT WITH:				NUMBER OF VEHICLES:			
	MOVING VEHICLE FREQ. (%)	PEDESTRIAN OR ANIMAL FREQ. (%)	FIXED OBJECT FREQ. (%)	TOTAL FREQ. (%)	SINGLE VEHICLE* FREQ. (%)	INVOLVES OTHER VEHICLE FREQ. (%)	TOTAL FREQ. (%)	
NONE	547 15.7	54 32.3	214 10.8	815 14.5	262 12.3	553 15.8	815 14.5	
MINOR AND MINIMAL	2333 66.9	97 58.1	1369 69.1	3799 67.5	1458 68.5	2341 66.9	3799 67.5	
MAJOR	545 15.6	15 9.0	352 17.8	912 16.2	363 17.0	549 15.7	912 16.2	
FATAL	60 1.7	1 0.6	45 2.3	106 1.9	47 2.2	59 1.7	106 1.9	
TOTAL	3485 (61.9)	167 (3.0)	1980 (35.2)	5632	2130 (37.8)	3502 (62.2)	5632	

TABLE 11b: INJURY SEVERITY BY COLLISION TYPE
(DRIVER ONLY)

* Includes pedestrians and animals

ONTARIO MOTORCYCLE ACCIDENTS - 1983 REPORTABLE

SEVERITY OF MOTORCYCLE DRIVER INJURY	INITIAL IMPACT WITH:				NUMBER OF VEHICLES:			
	MOVING VEHICLE FREQ. (Σ)	PEDESTRIAN OR ANIMAL FREQ. (Σ)	FIXED OBJECT FREQ. (Σ)	TOTAL FREQ. (Σ)	SINGLE VEHICLE* FREQ. (Σ)	INVOLVES OTHER VEHICLE FREQ. (Σ)	TOTAL FREQ. (Σ)	
NONE	604 16.0	48 23.6	207 9.8	859 14.1	250 10.8	609 16.1	859 14.1	
MINOR AND MINIMAL	2528 67.1	131 64.5	1443 68.2	4102 67.4	1575 68.1	2527 67.0	4102 67.4	
MAJOR	577 15.3	24 11.8	427 20.2	1028 16.9	451 19.5	577 15.3	1028 16.9	
FATAL	60 1.6	0 0.0	38 1.8	98 1.6	38 1.6	60 1.6	98 1.6	
TOTAL	3769 (61.9)	203 (3.3)	2115 (34.7)	6087	2314 (38.0)	3773 (62.0)	6087	

TABLE 11c: INJURY SEVERITY BY COLLISION TYPE
(DRIVER ONLY)

* Includes pedestrians and animals

MOTOR VEHICLE ACCIDENT REPORT										PAGE OF			
NAME OF SUBMITTING POLICE FORCE				REPORT COMPLETED ☐		DATE OF ACCIDENT		DAY		TIME OF ACCIDENT			
NAME OF INVESTIGATING OFFICER				NO		DIV/STAT/DET		TIME OFFICER ARRIVED OR AGENCY ACCIDENT REPORTED TO					
ROAD STREET, ROAD, HIGHWAY, ETC						CODE		ROAD JURISDICTION			CLASSIFICATION OF ACCIDENT		
HOUSE NO OR DISTANCE ☐ METRES OR ☐ KILOMETRES ☐ N ☐ S ☐ E ☐ W OF						CODE		☐ MUNICIPAL (EXCL TP RD) ☐ PROVINCIAL HIGHWAY ☐ TOWNSHIP ☐ COUNTY OR DISTRICT			☐ FATAL INJURY ☐ NON-FATAL INJURY ☐ NO INJURY ☐ NON-REPORTABLE		
INTERSECTION KEY POINT PATROL AREA OR OTHER REFERENCE						CODE							
MUNICIPALITY						COUNTY, DISTRICT OR REG. MUNC.							
DRIVER 1 (SURNAME FIRST)						CODE		VEHICLE MAKE		YEAR		COLOUR	
ADDRESS						TELEPHONE NO.		OWNER (SURNAME FIRST)		YEAR		PROV/STATE	
POSTAL CODE						ADDRESS						NUMBER OF OCCUPANTS IN VEHICLE	
LIC'D TO DRIVE ☐ YES ☐ NO DRIVER LICENCE NUMBER						INSURED ☐ YES ☐ NO INSURANCE COMPANY AND POLICY NUMBER							
PROV/STATE						CLASS		COND		DATE OF BIRTH		SEX ON EXP	
DESCRIBE TYPE OF VEHICLE OR COMBINATION OF VEHICLES						CODE							
DRIVER 2 (SURNAME FIRST)						CODE		VEHICLE MAKE		YEAR		COLOUR	
ADDRESS						TELEPHONE NO.		OWNER (SURNAME FIRST)		YEAR		PROV/STATE	
POSTAL CODE						ADDRESS						NUMBER OF OCCUPANTS IN VEHICLE	
LIC'D TO DRIVE ☐ YES ☐ NO DRIVER LICENCE NUMBER						INSURED ☐ YES ☐ NO INSURANCE COMPANY AND POLICY NUMBER							
PROV/STATE						CLASS		COND		DATE OF BIRTH		SEX ON EXP	
DESCRIBE TYPE OF VEHICLE OR COMBINATION OF VEHICLES						CODE							
INVESTIGATING OFFICER'S DESCRIPTION OF ACCIDENT													
TRAFFIC CONTROL OPERATIVE ☐ 1. TRAFFIC SIGNAL ☐ 2. STOP SIGN ☐ 3. YIELD SIGN ☐ 4. PEDESTRIAN CROSSWALK ☐ 5. POLICE CONTROL ☐ 6. SCHOOL GUARD ☐ 7. SCHOOL BUS ☐ 8. NO CONTROL ☐ 9. OTHER (SPECIFY) VEHICLE DAMAGE ☐ 1. CLEAR ☐ 2. RAIN ☐ 3. SNOW/SLUSH ☐ 4. FOG/ICE ☐ 5. DARK LIGHT ☐ 1. DAYLIGHT ☐ 2. DASH ☐ 3. OVER ☐ 4. DARK INDICATE NORTH BY ARROW													
SAFETY EQUIPMENT USE ☐ 1. YES ☐ 2. PARTIAL ☐ 3. NO SAFETY EQUIPMENT FITTED ☐ 1. YES ☐ 2. PELVIC BELT ONLY ☐ 3. NO ☐ 4. UNKNOWN													
SAFETY EQUIPMENT FITTED ☐ 1. NONE ☐ 2. PELVIC BELT ☐ 3. TORSO BELT ☐ 4. PELVIC & TORSO BELT ☐ 5. CHILD RESTRAINT ☐ 6. HELMET ☐ 7. UNKNOWN ☐ 8. OTHER INJURIES ☐ 1. NONE ☐ 2. MINOR ☐ 3. MAJOR ☐ 4. FATAL ☐ 5. DROWNING ☐ 6. AMPUTATION													
SAFETY EQUIPMENT FITTED ☐ 1. NONE ☐ 2. MINOR ☐ 3. MAJOR ☐ 4. FATAL ☐ 5. DROWNING ☐ 6. AMPUTATION SAFETY EQUIPMENT FITTED ☐ 1. NONE ☐ 2. MINOR ☐ 3. MAJOR ☐ 4. FATAL ☐ 5. DROWNING ☐ 6. AMPUTATION													
SAFETY EQUIPMENT FITTED ☐ 1. NONE ☐ 2. MINOR ☐ 3. MAJOR ☐ 4. FATAL ☐ 5. DROWNING ☐ 6. AMPUTATION SAFETY EQUIPMENT FITTED ☐ 1. NONE ☐ 2. MINOR ☐ 3. MAJOR ☐ 4. FATAL ☐ 5. DROWNING ☐ 6. AMPUTATION													
SAFETY EQUIPMENT FITTED ☐ 1. NONE ☐ 2. MINOR ☐ 3. MAJOR ☐ 4. FATAL ☐ 5. DROWNING ☐ 6. AMPUTATION SAFETY EQUIPMENT FITTED ☐ 1. NONE ☐ 2. MINOR ☐ 3. MAJOR ☐ 4. FATAL ☐ 5. DROWNING ☐ 6. AMPUTATION													
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SAFETY EQUIPMENT FITTED ☐ 1. NONE ☐ 2. MINOR ☐ 3. MAJOR ☐ 4. FATAL ☐ 5. DROWNING ☐ 6. AMPUTATION SAFETY EQUIPMENT FITTED ☐ 1. NONE ☐ 2. MINOR ☐ 3. MAJOR ☐ 4. FATAL ☐ 5. DROWNING ☐ 6. AMPUTATION													

FIGURE 1: ONTARIO MOTOR VEHICLE ACCIDENT REPORT

INDEPENDENT WITNESSES	NAME (SURNAME FIRST) AND ADDRESS		ACCIDENT NO.		PAGE OF	
			EMERGENCY EQUIPMENT IN ATTENDANCE		CALLED BY	
			SERVICES PERFORMED			

ROAD LOCATION ☐ 1 NON-INTERSECTION ☐ 2 INTERSECTION RELATED ☐ 3 IN INTERSECTION ☐ 4 AT NEAR PRIVATE DRIVE ☐ 5 AT RAILWAY CROSSING ☐ 6 UNDERPASS OR TUNNEL ☐ 7 OVERPASS OR BRIDGE ☐ 8 OTHER (SPECIFY)	ROAD CHARACTER ☐ 1 UNDIVIDED ONE-WAY ☐ 2 UNDIVIDED TWO-WAY ☐ 3 DIVIDED WITH RESTRAINING BARRIER ☐ 4 DIVIDED ☐ 5 RAMP ☐ 6 COLLECTOR LANE ☐ 7 EXPRESS LANE ☐ 8 TRANSFER LANE NUMBER OF LANES MAXIMUM SPEED POSTED ADVISORY SPEED 	ROAD CONDITION ☐ 1 GOOD ☐ 2 UNDER REPAIR ☐ 3 UNDER CONSTRUCTION ☐ 4 OTHER (SPECIFY) ROAD ALIGNMENT ☐ 1 STRAIGHT ON LEVEL ☐ 2 STRAIGHT ON HILL ☐ 3 CURVE ON LEVEL ☐ 4 CURVE ON HILL ROAD TYPE ☐ 1 ASPHALT ☐ 2 GRAVEL OR CRUSHED STONE ☐ 3 CONCRETE ☐ 4 EARTH ☐ 5 OTHER (SPECIFY)	VEHICLE ACCIDENT INVOLVES* MOVEABLE OBJECTS ☐ 1 OTHER MOTOR VEHICLE/S ☐ 2 PEDESTRIAN ☐ 3 CYCLIST ☐ 4 RAILWAY TRAIN ☐ 5 STREET CAR ☐ 6 FARM TRACTOR ☐ 7 ANIMAL ☐ 8 OTHER (SPECIFY) FIXED OBJECTS L OR R ☐ 30 RESTRAINING BARRIER ☐ 31 POLE (HORIZONTAL) ☐ 32 POLE (VERTICAL) ☐ 33 TREE ☐ 34 POST (SIGN, PARKING METER) ☐ 35 FENCE ☐ 36 CULVERT ☐ 37 BRIDGE SUPPORT ☐ 38 ROCK FACE ☐ 39 SNOW BANK OR DRIFT ☐ 40 DITCH ☐ 41 CURB ☐ 42 CRASH CUSHION ☐ 43 BUILDING OR WALL ☐ 44 OTHER (SPECIFY) NON-COLLISION EVENTS ☐ 45 FIRE/EXPLOSION ☐ 46 SUBMERSION ☐ 47 ROLLOVER ☐ 48 OTHER (SPECIFY)
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ROAD SURFACE CONDITION ☐ 1 DRY ☐ 5 PACKED SNOW ☐ 2 WET ☐ 6 ICE ☐ 3 LOOSE SNOW ☐ 7 MUD ☐ 4 SLUSH ☐ 8 LOOSE SAND OR GRAVEL	ROAD PAVEMENT MARKINGS ☐ 1 GOOD ☐ 2 FADED ☐ 3 NOT VISIBLE ☐ 4 OBSCURED ☐ 5 NO MARKINGS	VEHICLE CONDITION ☐ 1 NO APPARENT DEFECT ☐ 2 SERVICE BRAKES DEFECTIVE ☐ 3 STEERING DEFECTIVE ☐ 4 TIRE PUNCTURE OR BLOWOUT ☐ 5 TIRE TREAD INSUFFICIENT ☐ 6 HEADLAMPS DEFECTIVE ☐ 7 OTHER LAMPS OR REFLECTORS DEFECTIVE ☐ 8 ENGINE CONTROL DEFECTIVE ☐ 9 WHEELS OR SUSPENSION DEFECTIVE ☐ 10 VISION OBSCURED ☐ 11 TRAILER HITCH DEFECTIVE (SPECIFY) ☐ 12 NOT KNOWN ☐ 13 OTHER (SPECIFY)	VEHICLE MANOEUVRE ☐ 1 GOING AHEAD ☐ 2 SLOWING OR STOPPING ☐ 3 OVERTAKING ☐ 4 TURNING LEFT ☐ 5 TURNING RIGHT ☐ 6 MAKING U-TURN ☐ 7 CHANGING LANES ☐ 8 MERGING ☐ 9 REVERSING ☐ 10 STOPPED OR PARKED ☐ 11 PULLING AWAY FROM SHOULDER OR CURB ☐ 12 PULLING ONTO SHOULDER OR INTO CURB ☐ 13 NOT KNOWN OR OTHER (SPECIFY)	DIRECTION OF TRAVEL VEHICLE ☐ 1 NORTH ☐ 2 SOUTH ☐ 3 EAST ☐ 4 WEST INITIAL IMPACT TYPE ☐ 1 REAR END ☐ 2 ANGLE ☐ 3 TURNING MOVEMENT ☐ 4 SIDESWIPES ☐ 5 APPROACHING ☐ 6 SINGLE MOTOR VEHICLE ☐ 7 OTHER (SPECIFY)
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APPARENT DRIVER ACTION ☐ 1 DRIVING PROPERLY ☐ 2 FOLLOWING TOO CLOSE ☐ 3 SPEED TOO FAST ☐ 4 IMPROPER TURN ☐ 5 DISOBEY TRAFFIC SIGNAL ☐ 6 DISOBEY STOP SIGN ☐ 7 FAIL TO YIELD RIGHT-OF-WAY ☐ 8 IMPROPER PASSING ☐ 9 LOST CONTROL ☐ 10 WRONG WAY ON ONE-WAY ROAD ☐ 11 NOT KNOWN ☐ 12 OTHER (SPECIFY) ☐ 13 DISOBEY OTHER CONTROLS (SPECIFY)	PEDESTRIAN ACTION INVOLVED PERSON NO. ☐ 1 CROSSING INTERSECTION WITH RIGHT-OF-WAY ☐ 2 CROSSING INTERSECTION WITHOUT RIGHT-OF-WAY ☐ 3 CROSSING INTERSECTION NO TRAFFIC CONTROL ☐ 4 CROSSING PED. CROSSOVER ☐ 5 WALKING ON ROADWAY WITH TRAFFIC ☐ 6 WALKING ON ROADWAY AGAINST TRAFFIC ☐ 7 ON SIDEWALK OR SHOULDER ☐ 8 PLAYING OR WORKING ON HIGHWAY ☐ 9 COMING FROM BEHIND PARKED VEHICLE OR OBJECT ☐ 10 RUNNING INTO ROADWAY ☐ 11 CROSSING THROUGH TRAFFIC ☐ 12 OTHER (SPECIFY)	HIT AND RUN DRIVER ☐ 1 APPREHENDED ☐ 2 NOT APPREHENDED ☐ NO FURTHER ACTION OR ASSIGNED TO BREATH TEST DRIVER ☐ 1 LOWEST READING (MILLIGRAMS) ☐ 2 REFUSED TEST ☐ 3 OTHER BLOOD-ALCOHOL TEST
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INVOLVED PERSON NO.	INJURED TAKEN TO BY	RELATIVES NOTIFIED BY	AMBULANCE CALL NO. / SCHOOL AGE CHILD INVOLVED / INDICATE SCHOOL NAME
VEHICLE TAKEN TO BY			SIGNATURE OF INVESTIGATING OFFICER
			DATE OF REPORT
PERSON CHANGED SECTION & ACTIVITY NO.			SIGNATURE OF SUPERVISOR

FIGURE 1: CONT

ONTARIO MOTORCYCLE ACCIDENTS - REPORTABLE
1981, 1982 AND 1983 COMBINED

M/CYCLE OCCUPANT	U/K		UNDER 16		16 - 19		20 - 24		25 - 34		OVER 34		TOTAL	
	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)	FREQ.	(%)
DRIVER	177	1.1	306	1.8	5042	29.9	5926	35.2	4007	23.8	1384	8.2	16842	100.0
PASSENGER	83	2.4	332	9.7	1362	39.6	1031	30.0	483	14.0	149	4.3	3440	100.0

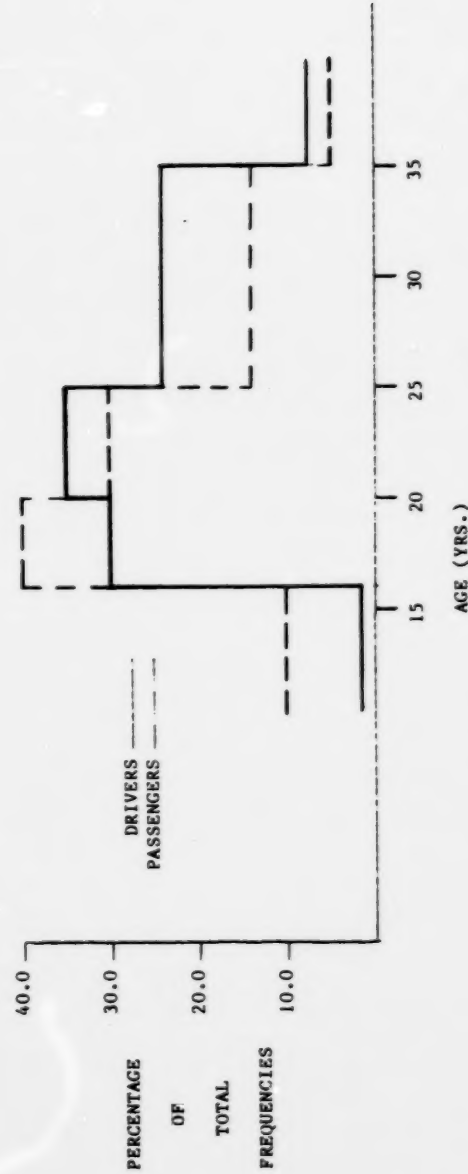


FIGURE 2: AGE DISTRIBUTION OF DRIVERS AND PASSENGERS